

(No Model.)

2 Sheets—Sheet 1.

G. E. WARING, Jr.

WATER CLOSET.

No. 303,599.

Patented Aug. 12, 1884.

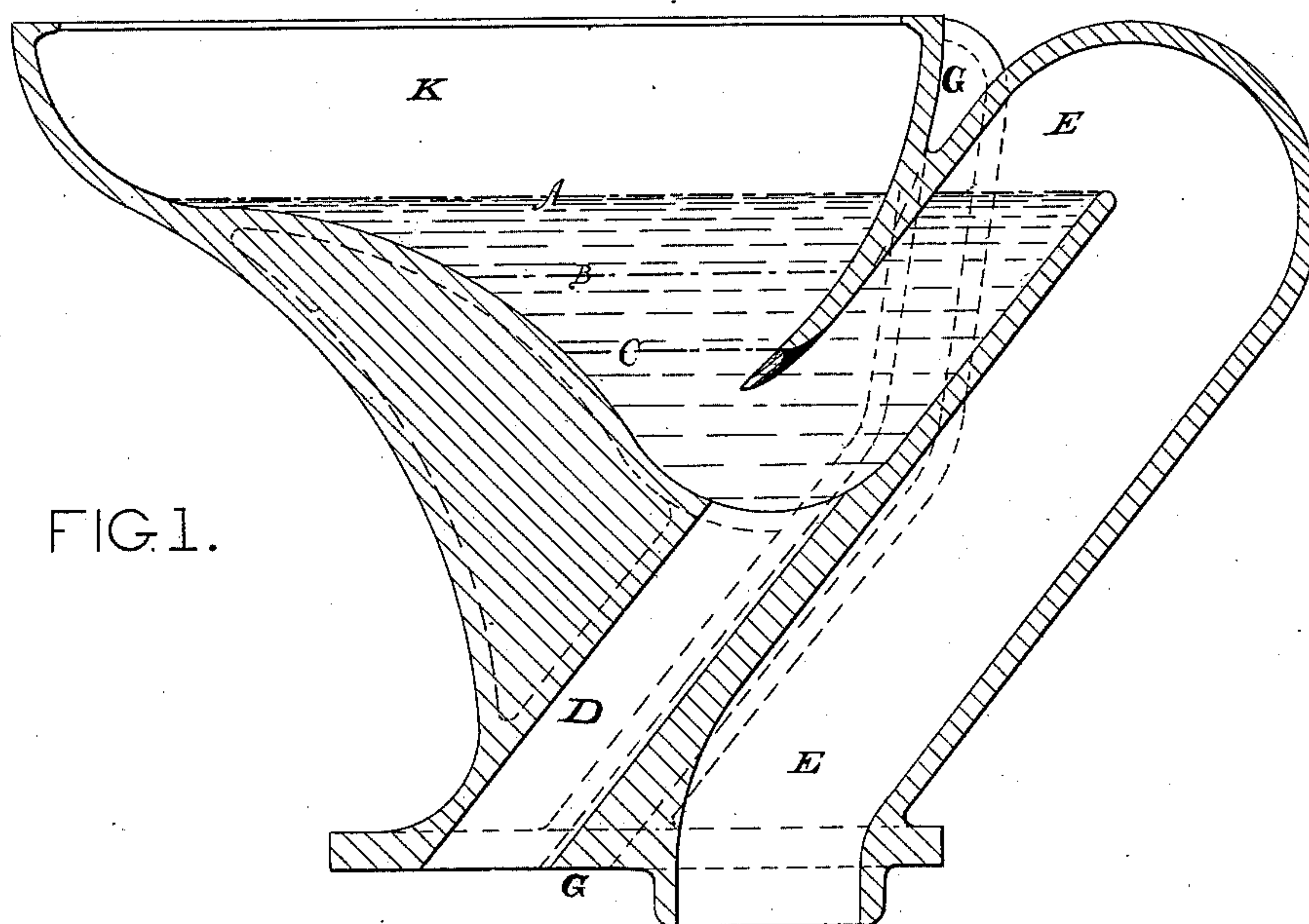


FIG. 1.

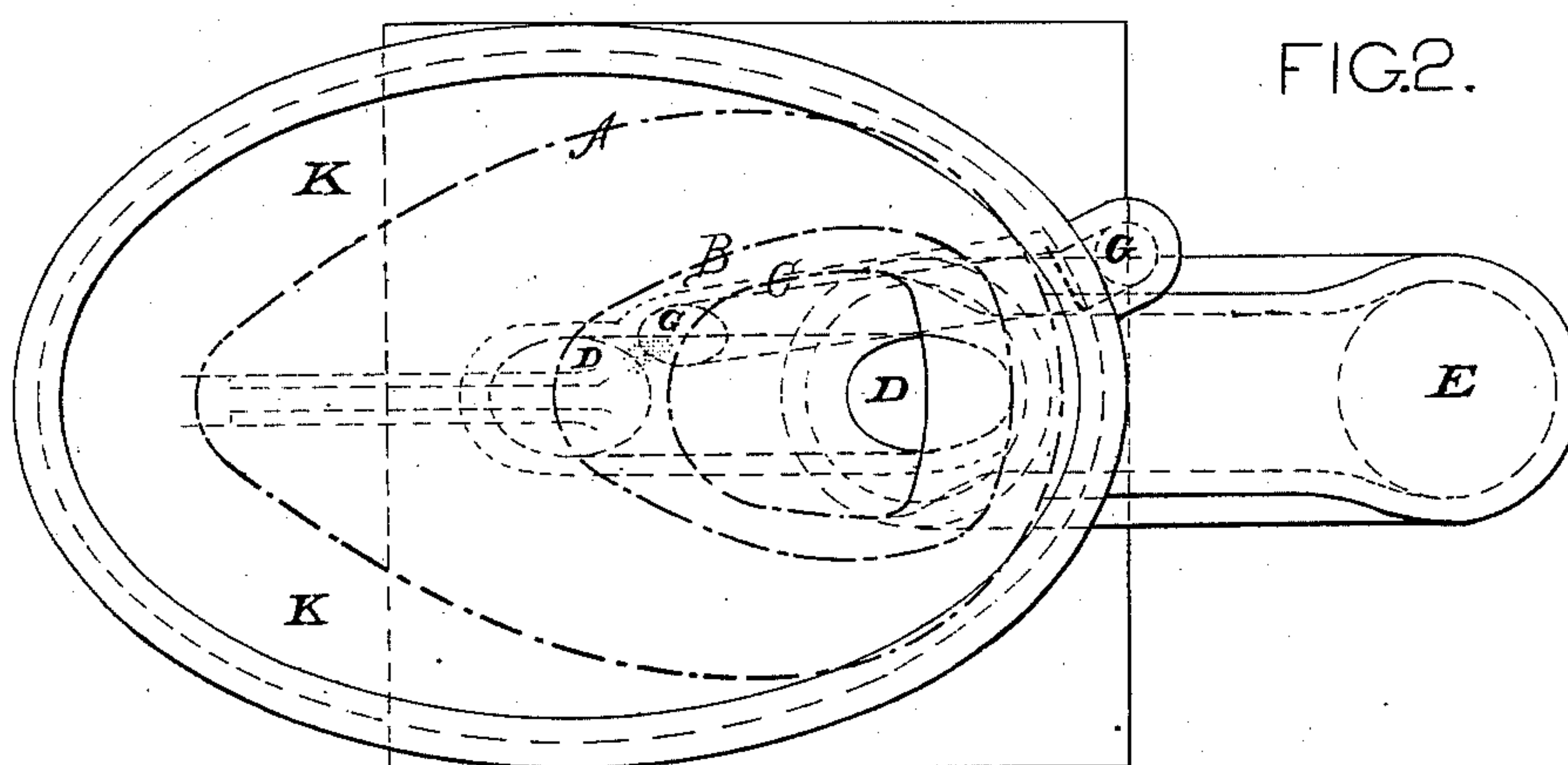


FIG.2.

WITNESSES:

Frank Tweedy
Wilson Eyre

INVENTORI

Geo. S. Waring.

(No Model.)

2 Sheets—Sheet 2.

G. E. WARING, Jr.

WATER CLOSET.

No. 303,599.

Patented Aug. 12, 1884.

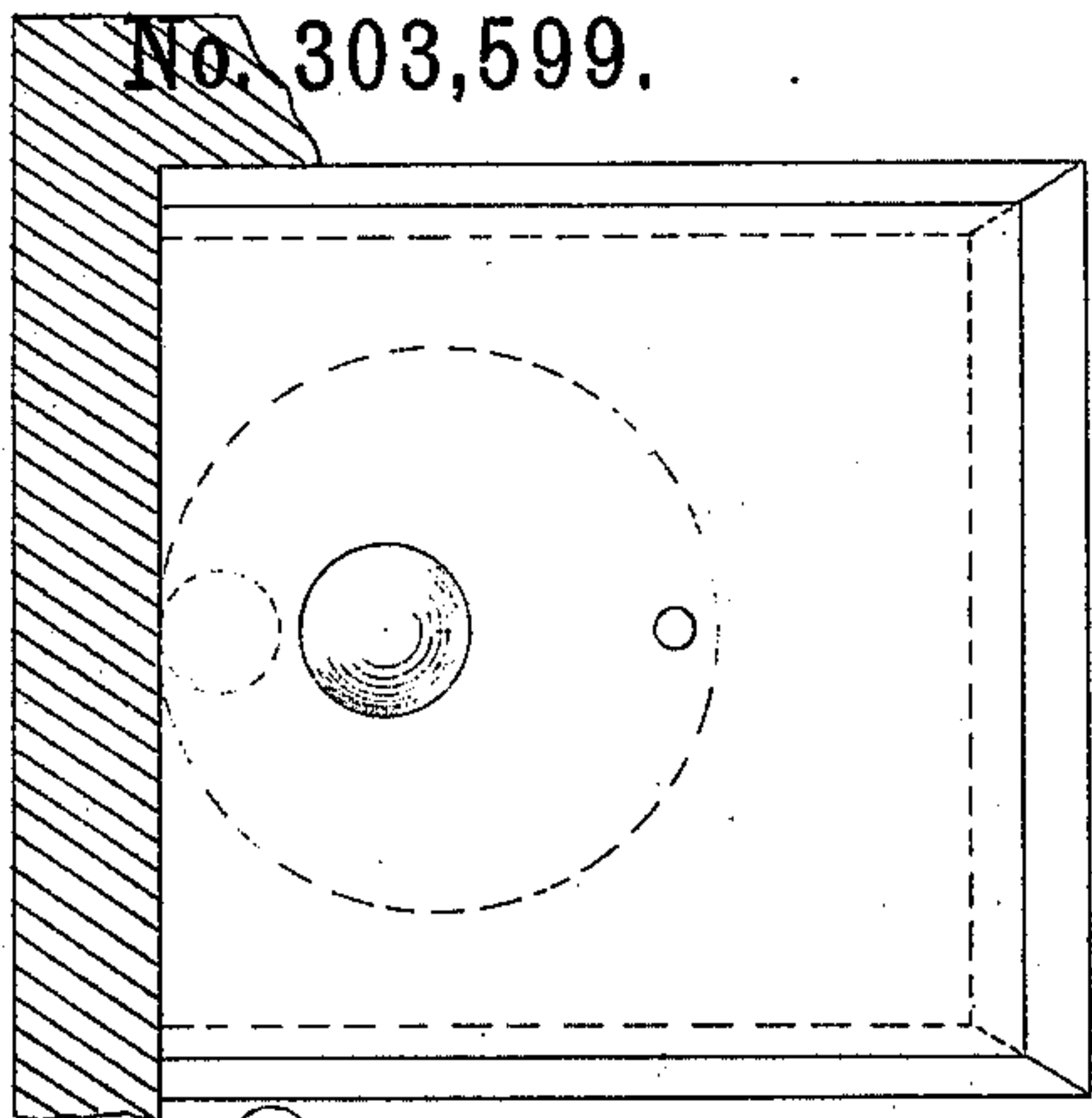


FIG 3.

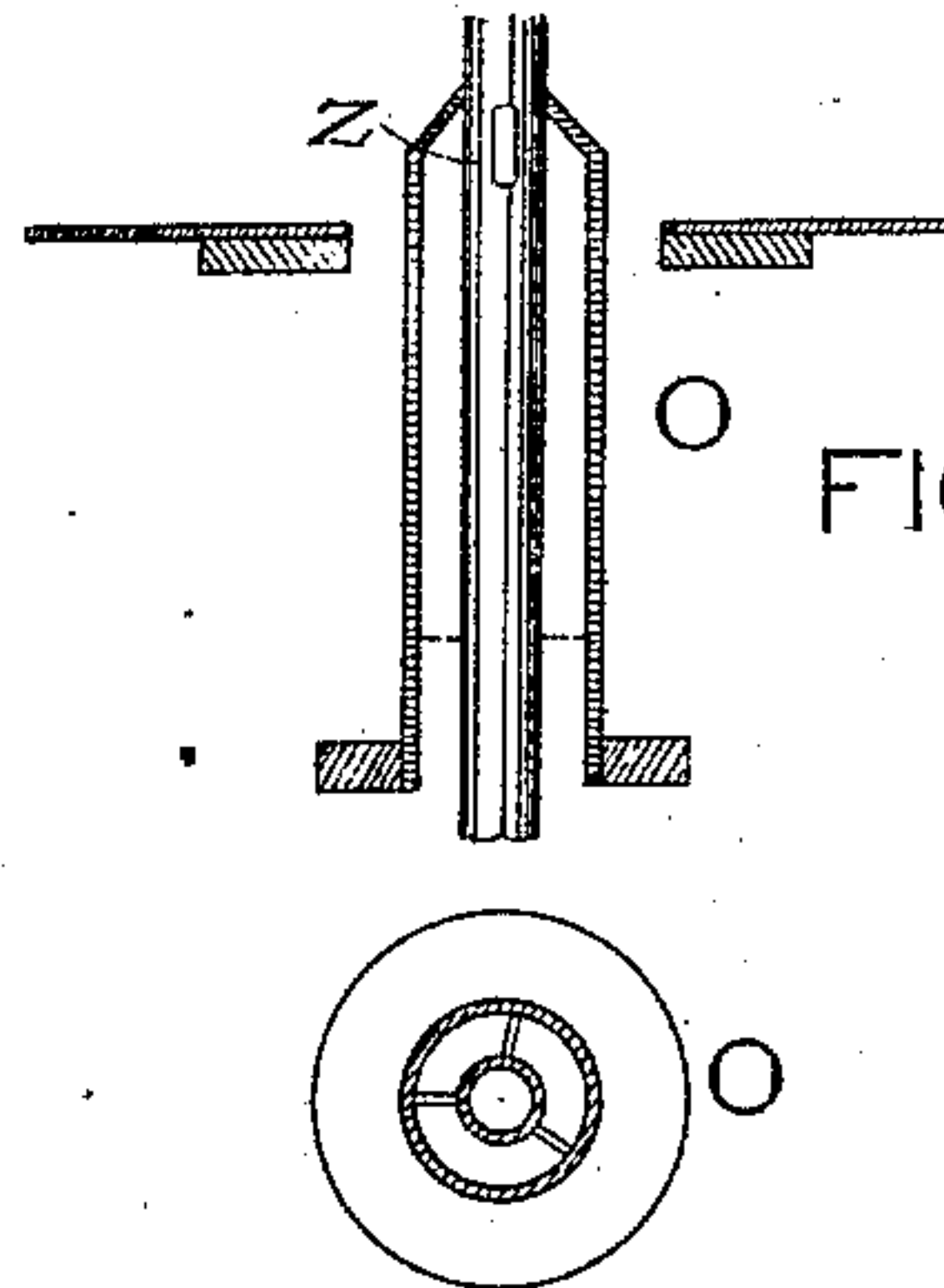


FIG 5.

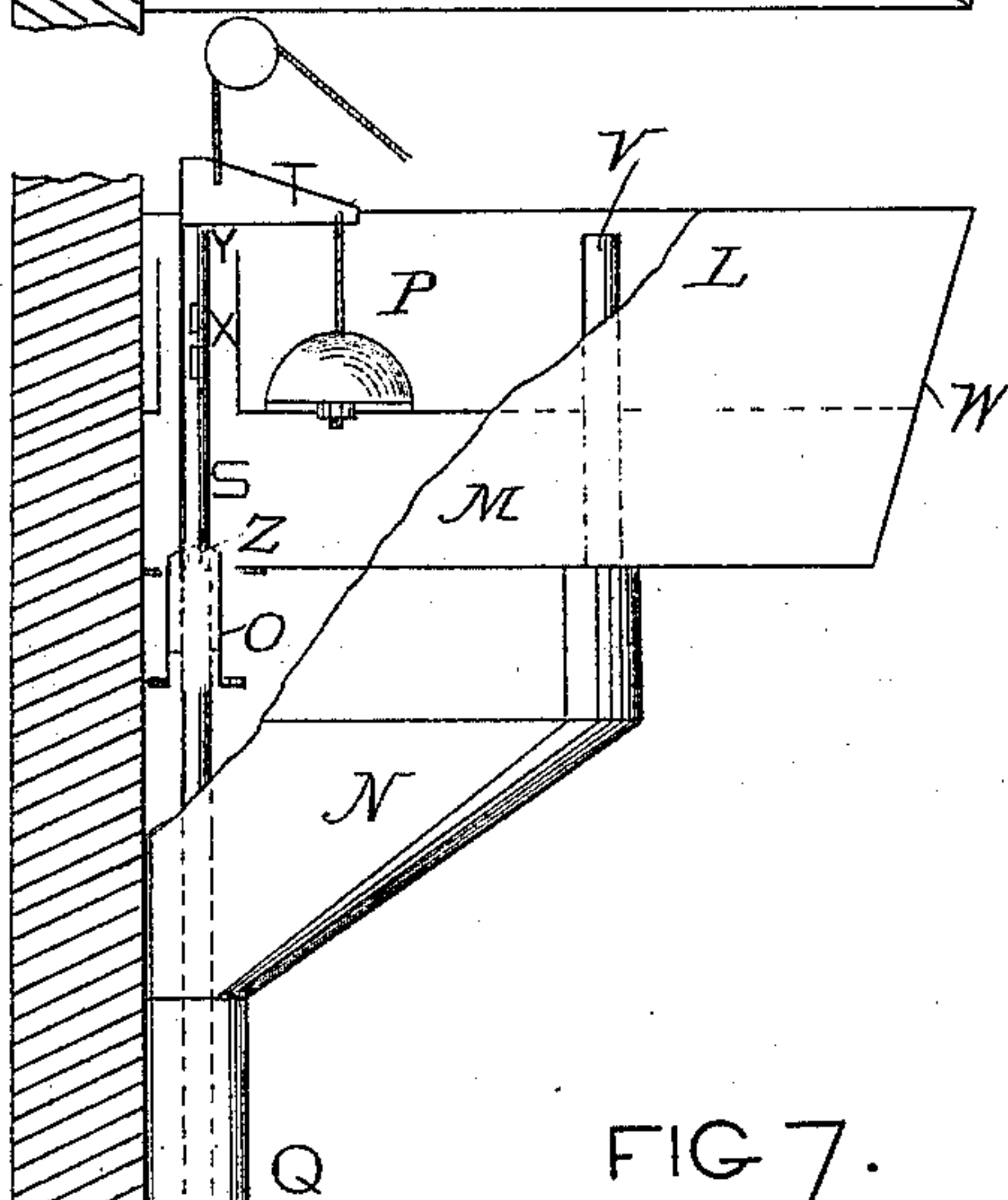


FIG 7.

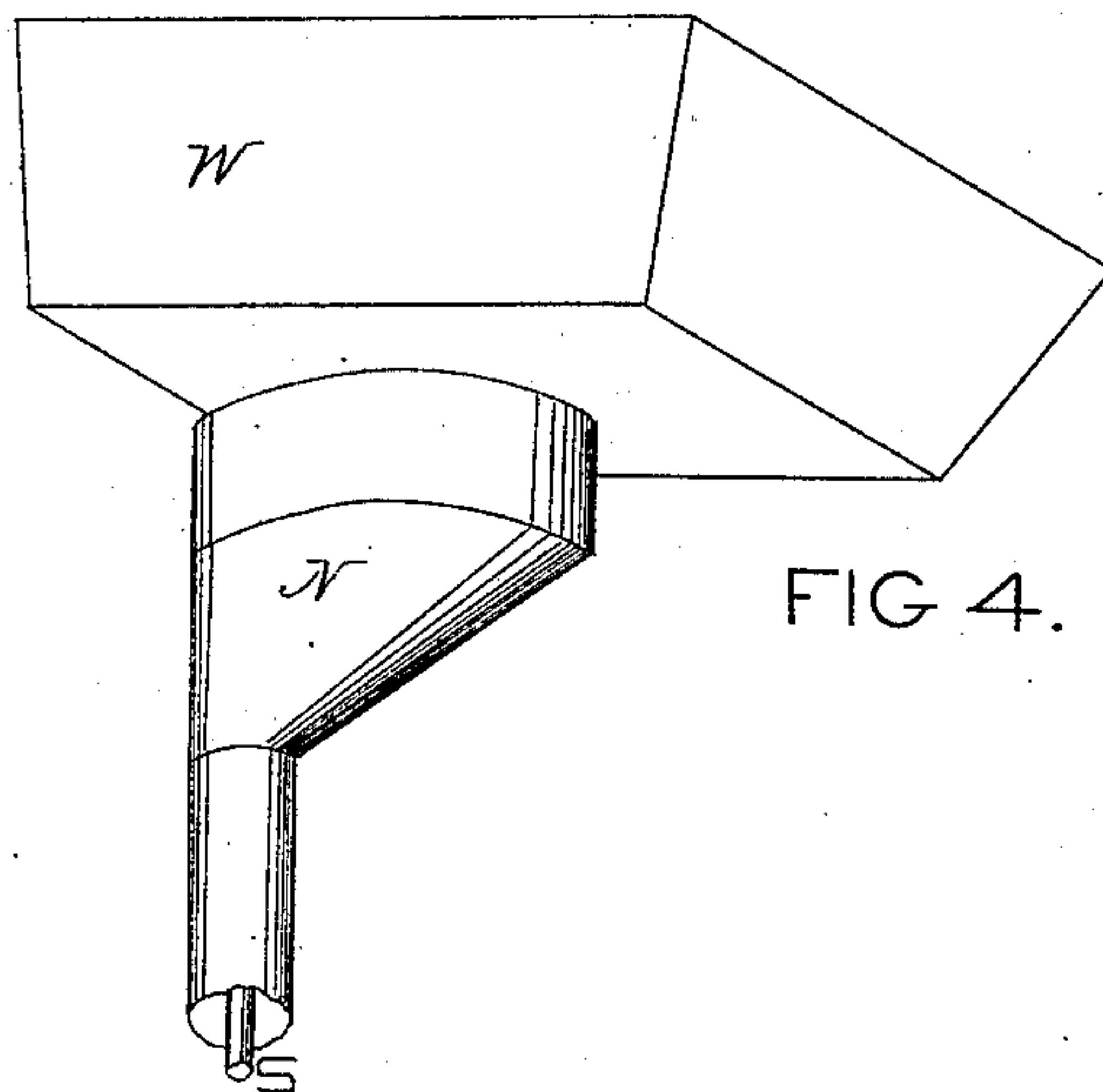


FIG 4.

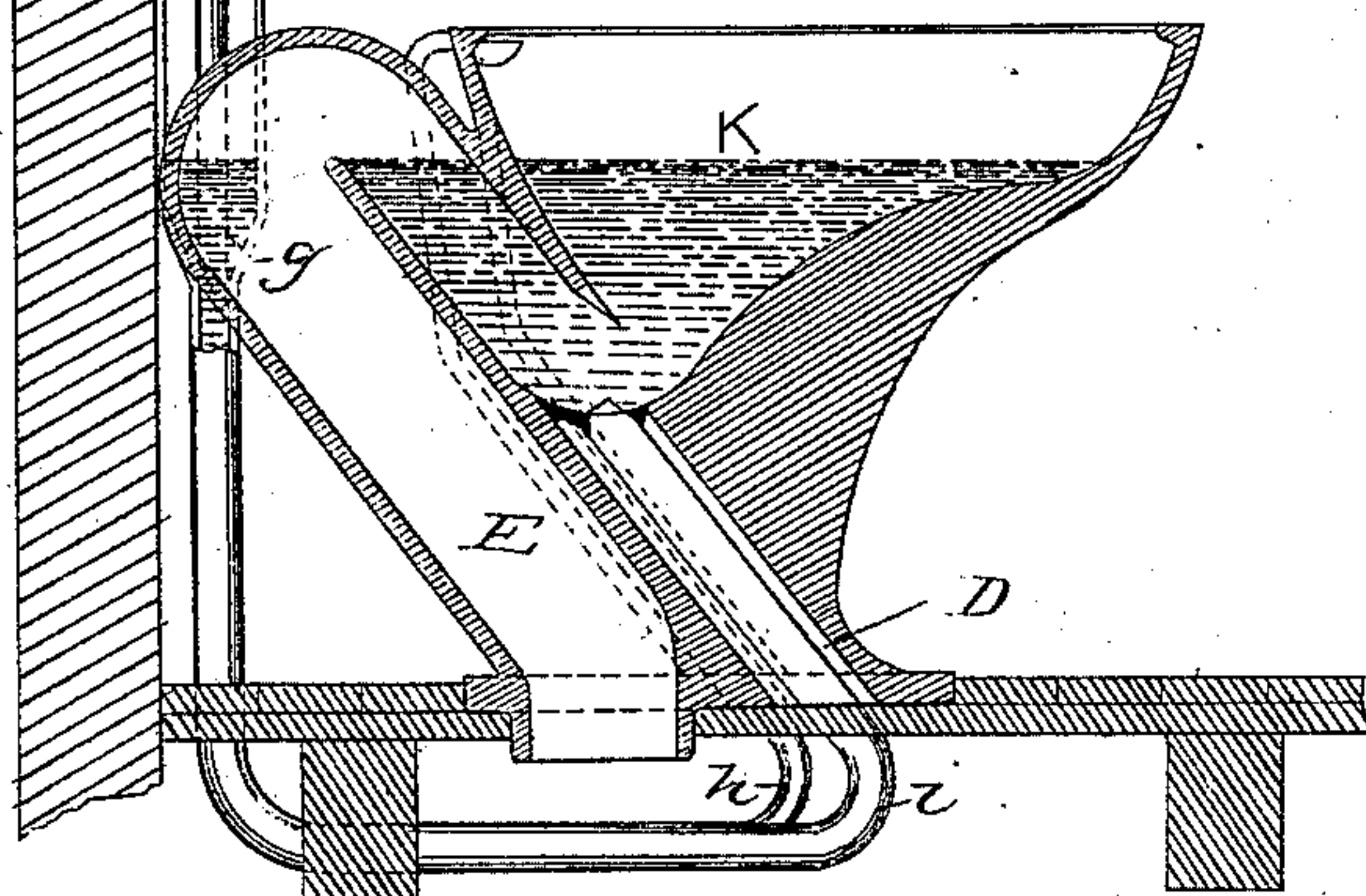
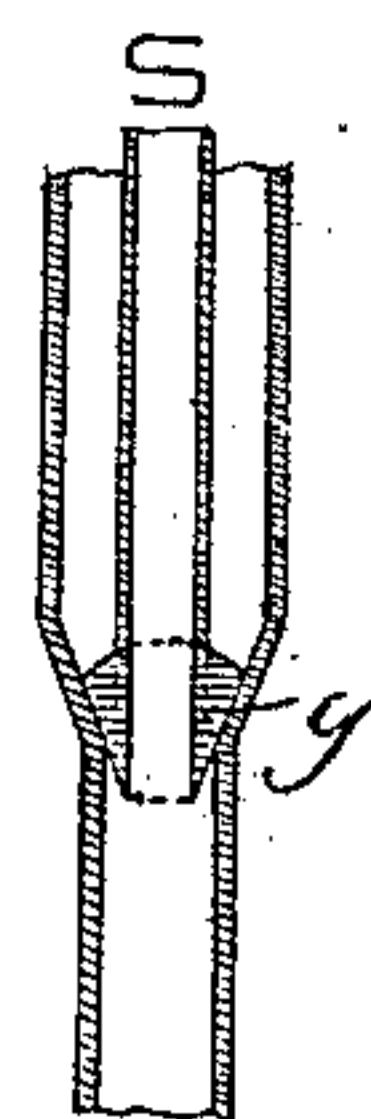


FIG 6.



WITNESSES.

Frank Swadby
Nelson Egan

INVENTOR.

G. E. Waring, Jr.
ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE E. WARING, JR., OF NEWPORT, RHODE ISLAND.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 303,599, dated August 12, 1884.

Application filed April 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEO. E. WARING, Jr., a citizen of the United States, residing at Newport, in the county of Newport and State of Rhode Island, have invented new and useful Improvements in Water-Closets, of which the following is a specification.

My invention relates to the construction of water-closets holding water at a permanent level, being the level of a fixed overflow-point, and intended to be emptied by a jet of water entering at the bottom of the bowl or trap, or by suction at the top of the trap, produced by the rapid passage of a stream of water, or by a current of air, or by an air-pump, the principle of emptying by a jet being, for the purposes of illustration, shown in the drawings herewith; also, for a new and improved method of supplying a flow of water to water-closets.

Water-closets heretofore made to be worked on the principle herein set forth have the bowl of a round or oval form with the outlet hole at or near the middle of the same, the outlet-pipe rising at an inclination, but descending from the turn of the trap in a vertical direction. Bowls of such form do not afford such a deposition of the volume of water contained as to give the greatest depth at a point where depth is most necessary for the reception of fecal deposits, and they give a greater depth than is necessary at a point where only urine is received, thus requiring an unnecessary quantity of water to fill them while accomplishing the purpose of the water less completely than by my invention; also, the vertical direction of the outlet-pipe requires more floor-space than does my invention. So, also, the appliance for supplying water to water-closets as generally used is so arranged that the channel connecting the closet with the supply-cistern is at ordinary times filled with air. The displacement of this air, as the water-supply descends through the pipe, offers considerable resistance to the flow and a consequent loss of head and force, and its escape into the bowl is accompanied with an objectionable noise. In my invention the supply-pipe stands full for its whole height, and there is no air between the water in the

closet and the water in the service-box or supply-cistern.

I obtain the objects of my invention by the mechanism and construction illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical section through the bowl and trap from front to rear. Fig. 2 is a view from above, showing the contours of the inner surface thereof at different elevations. Fig. 3 is a view from above of the upper compartment of the supply-cistern. Fig. 4 is a perspective view of the supply-cistern. Fig. 5 is a cross section of the valve and overflow connected with the service-box. Fig. 6 is a cross-section of the valve and overflow-outlet near the bottom of the supply-pipe. Fig. 7 shows the manner in which the water-supply is connected and applied to the bowl. These illustrations of the construction of the supply-cistern are not a necessary part of the specification on which I base my claim, and the purpose to be accomplished by my invention may be accomplished by means of supply-cisterns of different general construction but securing the same result—that is, the continuous column of water between the cistern and the bowl or trap.

Similar letters refer to similar parts throughout the several views.

The bowl K, with its supply-channels D and G and its trapped discharge-pipe E, is made in one piece of pottery or other material, or in several pieces properly fastened together. When full, the surface of the water reaches to the contour line A, which extends nearly to the front of the bowl, barely covering with water the surface which would otherwise receive deposits of urine, while the greatest depth of water inclosed by the contour C is in that part where the dropping of feces requires the greatest depth. The supply-stream delivered by a pipe passing through the channel D, and the smaller stream for flushing the bowl, delivered by a pipe passing through the channel G, may both be introduced from below the floor of the closet and within the foot of the bowl. In like manner the discharge-pipe E is inclined toward the center of the bowl and finds its exit through the footing of the same, so that the whole service of supply

and delivery is by a pipe connected beneath the floor within the space covered by the solid foot of the bowl, there being, when so arranged, no pipe, valve, or appliances of any kind in the space around the bowl.

I do not wish to confine my invention to water-closets of the precise form and arrangement indicated in the drawings, as the object of my invention may be obtained by other modifications of the same general principle.

The supply-cistern W and service-box N consist of three compartments. The service-box N—the third compartment—is placed at a lower level than the supply-cistern, and connects with it by a valve, O, the two compartments of the supply-cistern communicating by another valve, P. The service-box is continued in the form of a hollow pipe, Q, of a certain size, to a point below the permanent level of the water of the bowl of the closet. Below this level it is stopped by a valve, *g*, which prevents the escape of its water. This valve is penetrated by an open pipe, S, of smaller diameter than the pipe just described, which is extended to a point at or near the top of the supply-cistern, being there connected with a pulley, lever, or other device by which it may be raised or lowered. At its top it is connected by a solid arm, T, or other device with the valve P, by which the two parts of the supply-cistern communicate. The same small pipe, S, which opens through and is connected with the lower valve, *g*, and with the valve P, connecting the two compartments of the supply-cistern, carries a third valve, O, whose office it is to close the outlet of the supply-cistern W. These three valves are thus attached to a rigid pipe, which causes them all to move simultaneously.

The operation of this apparatus and its connection with the bowl of the closet is as follows: The small pipe S with its three valves, O, P, and *g*, stand at their lowest point. The first compartment of the supply-cistern is full of water. The second compartment, M, has been emptied of its water, which has passed through the second valve, O, filled the pipe Q above the third or lowest valve, *g*, and the service-box N, and has overflowed through the overflow-holes at Z, delivering to the interior of the small pipe S, and has run into the bowl K, filling it to its permanent water-line. In the filling of the service-box and supply-pipe, the air contained therein has been driven out through the vent-pipe V. Any excess of supply in the first compartment, L, of the supply-cistern has overflowed at Y, and, passing through the overflow-holes at X and Z, has run into the bowl of the closet K. When the small pipe S and its valves are raised, the following operations take place: The water contained in the service-box N and in the large pipe Q passes around the valve *g*, and air enters at the vent-pipe V. The valve P is raised and water flows into the second compartment, M, of the supply-cistern, being held there by

the closing of the valve O. The flushing of the closet being completed, the handle is released, the small pipe and its three valves descend, the lower one, *g*, being closed, the second one, O, being opened, and the first one, P, being closed, the water of the second compartment, M, passing into the service-box N and supply-pipe Q, and overflowing at Z, to fill the bowl preparatory to another use.

In order to continue the permanence of the continuous column of water between the supply-cistern and the trap, as set forth, it is necessary that the branch pipe for supplying a flush to the upper part of the bowl should be attached to the main pipe below the normal level of the trapping-water.

The different compartments of the supply-cistern or service-box being arranged substantially as shown, an overflow-pipe reaching from the top of the supply-cistern to and through the valve by which the discharge-pipe is closed, permits the discharge directly into the closet of any excess of water flowing into the cistern. The overflow-pipe S, the valve *g*, in the course of the supply-pipe being placed below the level of the water in the bowl, accomplishes one chief purpose of my invention, which is to maintain a supply-pipe standing filled with water. When this valve is opened, the pressure of water from above drives the supply with much force through the injection-pipe *i* in the trap, and through the branch pipe *h*, which delivers behind the pan in the bowl K, for the flushing and cleaning of the upper portion thereof. The force of the jet *i* drives the water contained in the bowl and trap through the ascending arm of the trap and toward the soil-pipe. In this manner the contents of the bowl and the added flushing-water are discharged. The discharge being completed, the valve *g* is closed and the contents of the lower compartment of the supply-cistern flow through a small hole in the pipe S to refill the trap and bowl to the height of the overflow-point or bend of the outlet-pipe E. The after filling of the bowl may be accomplished in other ways, as, by the usual one of dividing a subsidiary reservoir arranged to retain a portion of the flushing-supply, and discharging it slowly through the overflow-pipe.

I am aware that prior to my invention water-closet bowls and outlet-pipes have been so constructed that water is held in the bowl at a certain level by a rigid overflow-point; that supply-cisterns of several compartments, in connection with service-boxes, have been used; and that the various valves of the apparatus have been so connected as to be actuated by a single movement. I therefore do not claim such construction, broadly; but

What I do claim, and desire to secure by Letters Patent, is—

1. A combined water-closet bowl and trap, constructed so that the water may be held therein at a permanent level, said bowl being deep-

est at its rear portion and shallowest at its front portion, and having its outlet in the rear portion, combined with means applied to the water in the trap other than the force of water falling on it from above—as, for instance, a jet—whereby the contents of the bowl and trap may be automatically discharged, substantially as and for the purposes herein set forth.

10 2. A water-closet bowl constructed so that the water may be held therein at a permanent level, combined with means—such as a jet—whereby the contents of the bowl may be automatically discharged, and a pipe for supply-

15 ing the flushing-water to the upper part of the

bowl, said pipe being connected to the main supply-pipe at a point below the normal level of the water in the bowl, substantially as and for the purpose set forth.

3. The combination, with a trapped bowl of a water-closet slop-hopper or urinal and a water-supply cistern, of a supply-pipe between the bowl and cistern so arranged and adjusted as to secure an unbroken column of water between the bowl and cistern, substantially as and for the purpose set forth.

GEO. E. WARING, JR.

Witnesses:

FRANK TWEEDY,
WILSON EYRE.